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NCDOT Report on Improving Safety on Secondary Roads

Kevin Lacy, PE, State Traffic Engineer



Overview

- Crash data and Safety Performance on Secondary Roads
 - Driver Behavior
 - Roadway Environment
 - Speed Limits
- Recommendations
- Additional Data Available



Secondary Road System Crash Data and Safety Performance



Secondary Road System Crash Data

| Year | Total Crashes | Severe Injury Crashes | Severe Injuries | Fatal Crashes | Fatalities |
|-----------------------|----------------|-----------------------|-----------------|---------------|--------------|
| 2010 | 80,338 | 769 | 963 | 504 | 539 |
| 2011 | 77,529 | 800 | 960 | 474 | 509 |
| 2012 | 77,466 | 743 | 888 | 506 | 537 |
| 2013 | 79,474 | 679 | 814 | 475 | 514 |
| 2014 | 79,559 | 696 | 849 | 460 | 489 |
| TOTAL | 394,366 | 3,687 | 4,474 | 2,419 | 2,588 |
| 5 Year Average | 78,873 | 737 | 895 | 484 | 518 |



Secondary Road System Crash Data

When accounting for traffic volume...

- When compared to the primary system, the secondary system has a higher rate of crashes, injury, and fatalities
- Secondary Roads are overrepresented in all areas of safety performance

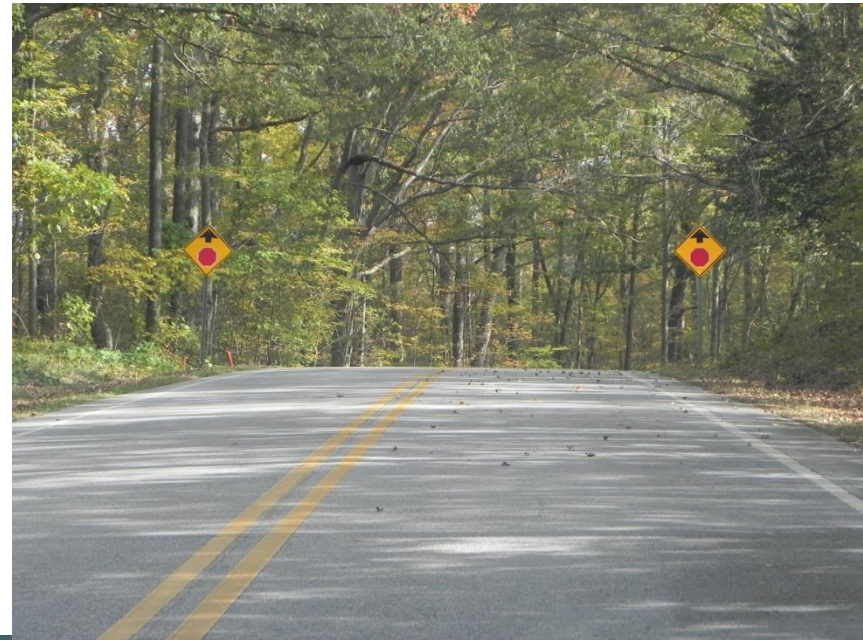
| Crash Rate Type | Primary System Total Rate | Secondary System Total Rate | Primary System Fatal Rate | Secondary System Fatal Rate |
|---------------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------|
| Total | 152.41 | 271.15 | 0.87 | 1.57 |
| Within Municipal Limits | 175.51 | 283.35 | 0.69 | 1.07 |
| Outside Municipal Limits | 113.09 | 247.22 | 1.17 | 2.57 |
| 2-Lane Outside Municipal Limits | 160.22 | 248.47 | 1.74 | 2.59 |



Secondary Road System Crash Data

Driver Behavior

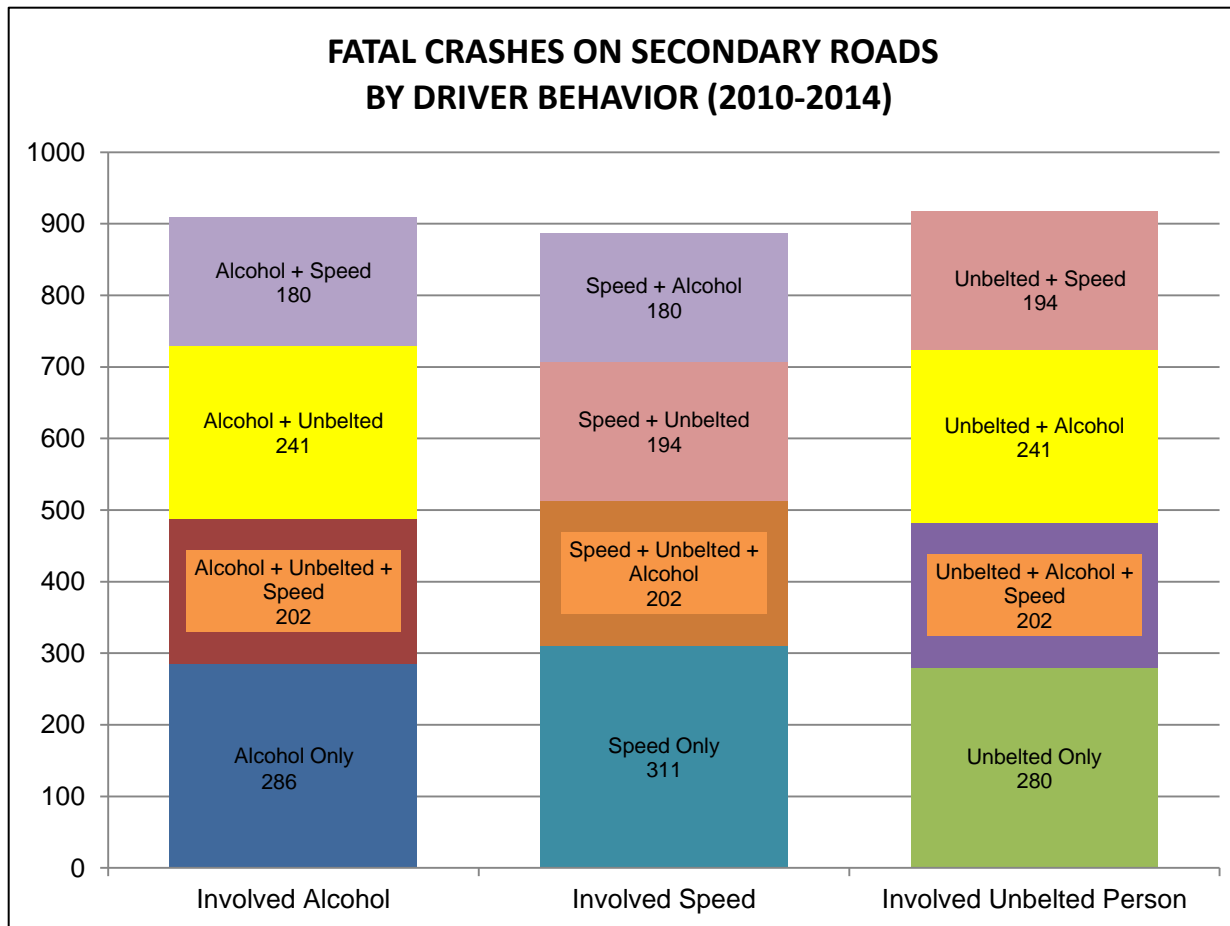
- Driver behavior choices are critical in understanding the safety performance on Secondary Roads
- Alcohol, unbelted drivers and passengers, and speed all contribute to high rates of death and injury on secondary roads
- Additional efforts in these areas should result in decreases in fatal crashes
- Driver choices on secondary roads are of greater importance due to:
 - Lack of modern design elements
 - Less forgiving roadside



Secondary Road System Crash Data

Driver Behavior

In **70%** of the Fatal Crashes on Secondary Roads, one or more of Alcohol Use, Speed or being Unbelted contributed to the Fatal Crash



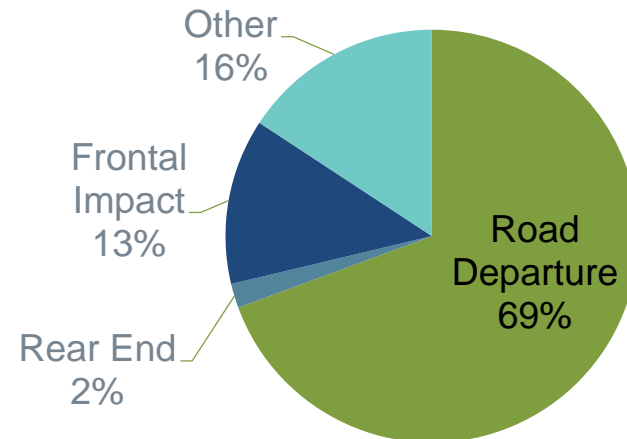
Secondary Road System Crash Data

Roadway Environment

- The most common crash type involves a driver departing their lane or the roadway
- Road departure crashes are 33% of the total crashes, but make up 69% of the fatal crashes on secondary roads
- Preventing these crashes, or reducing the severity when they occur, is necessary to achieve reductions in death, injury and crashes on secondary roads



Fatal Crashes 2010 - 2014



Secondary Road System Crash Data

Roadway Environment

The approach to addressing road departure crashes is based on the following three objectives:

- Keep vehicles on the roadway and in their travel lane. The design of the road, as well as addressing driver behavior, is relative to this objective.
- Reduce opportunities for crashing or overturning if a vehicle does leave the roadway and enters the roadside area. The roadside environment is important when considering this objective.
- Reduce the severe outcomes of crashes that do occur. When crashes take place having roadside hardware in place, such as guardrail (where steep slopes exist), can often reduce the severity of the event.



Secondary Road System – Speed Limits



Secondary Road System

Speed Limits on Secondary Roads

- NC General Statute 20-141: All speed limits outside incorporated municipal limits are 55 mph
- Speed limit is changed based on the results of an engineering investigation
- Must have a signed ordinance in place
- 52% of all speeding related fatalities occur on the secondary road system



Secondary Road System

Speed Limits on Secondary Roads

- Over 46,000 miles of secondary road set at 55 mph by statute
- Majority of these roads not designed and have not been improved to support 55 mph
- Would be cost prohibitive to improve design on the secondary road system
- Ideally the roadside environment, road design, and speed limit would be in agreement

| Speed Limit | Miles of Secondary Roadway |
|-------------|----------------------------|
| 20 | 102 |
| 25 | 2,398 |
| 30 | 336 |
| 35 | 7,301 |
| 40 | 435 |
| 45 | 7,207 |
| 50 | 331 |
| 55 | 46,406 |
| 60 | 5 |



Secondary Road System

Speed Limits on Secondary Roads

- It is likely that small reductions in operating speed can lead to reductions in injuries and fatalities on these roads
- Nearly 980 deaths involving speed have occurred on secondary roads in last 5 years
- If drivers can be convinced to lower operating speed through changes in the speed limit, posting of regulatory signs, publicity, enforcement, and other measures, research indicates significant reductions could be achieved



Secondary Road System – Recommendations



Secondary Road System Recommendations to Improve the Safety Performance

- Coordination of Highway Safety Activities between the Division of Highways, the Governor's Highway Safety Program
 - Include law enforcement and other partners in the Executive Committee for Highway Safety
 - Align more engineering safety projects with behavior and enforcement projects
 - Continue and enhance existing efforts
- Review 1,000 miles of secondary roadways with statutory speed limits each year
 - Determine the appropriate maximum speed limit that should be posted
 - Roadways will be selected using crash data to prioritize the roadways with the highest safety need
 - Actions will be in addition to requests from citizens



Secondary Road System Recommendations to Improve the Safety Performance

- Develop a Systemic Intersection Safety Program
 - Address sight distance, traffic control, and other rural intersection issues
 - Focus on fatal and severe injury crashes
- Integrate Safety Analysis Processes into Resurfacing Program
 - Develop crash analyses for roadways that will be resurfaced
 - Develop potential safety projects that can either be completed before the schedule resurfacing project or as part of the resurfacing project



Secondary Road System Additional Data Available

GIS Map of Secondary Road Crash Data:

<http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=b0bdd753e48a431bbcb1d415a76c4b84>

Website of Crash Data for all Secondary Roads:

<https://connect.ncdot.gov/resources/safety/Pages/Secondary-Roads-Crash-Data.aspx>



Questions?

